

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To:  
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Eingang

25. NOV. 2003

Patentstelle E 413

INVITATION TO PAY ADDITIONAL FEES

(PCT Article 17(3)(a) and Rule 40.1)

Applicant's or agent's file reference

FR6044 DE

PAYMENT DUE

within 30 ~~days~~/days  
from the above date of mailing

International application No.

PCT/EP 03/08472

International filing date  
(day/month/year)

31/07/2003

Applicant

BASELL POLYOLEFINE GMBH

1. This International Searching Authority

- (i) considers that there are 4 (number of) inventions claimed in the international application covered by the claims indicated ~~below~~ on the extra sheet:

and it considers that the international application does not comply with the requirements of unity of invention (Rules 13.1, 13.2 and 13.3) for the reasons indicated ~~below~~ on the extra sheet:

- (ii) ☒ has carried out a partial international search (see Annex) ☐ will establish the international search report on those parts of the international application which relate to the invention first mentioned in claims Nos.:

1 (part), 2-16 (part 1)

- (iii) will establish the international search report on the other parts of the international application only if, and to the extent to which, additional fees are paid

2. The applicant is hereby invited, within the time limit indicated above, to pay the amount indicated below:

EUR 945,00 x 3 = EUR 2.835,00  
Fee per additional invention number of additional inventions total amount of additional fees

Or, \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

The applicant is informed that, according to Rule 40.2(c), the payment of any additional fee may be made under protest, i.e., a reasoned statement to the effect that the international application complies with the requirement of unity of invention or that the amount of the required additional fee is excessive.

3. ☐ Claim(s) Nos. \_\_\_\_\_ have been found to be unsearchable under Article 17(2)(b) because of defects under Article 17(2)(a) and therefore have not been included with any invention.

Name and mailing address of the International Searching Authority



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EINSCHREIBEN

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1 (part 1) 2-16 (part 1)

Ziegler catalyst comprising: a magnesium alkoxide (component a), a transition metal compound (component b), an organometallic compound (component c), a compound of the chemical formula  $M-R(x)$ , where M is an element of the main group IV and R is halogen

Process according to claim 8,12 with the above described catalyst

2. Claims: 1 (part 2) 2-16 (part 2)

Ziegler catalyst comprising: a magnesium alkoxide (component a), a transition metal compound (component b), an organometallic compound (component c), a compound of the chemical formula  $M-R(x)$ , where M is an element of the main group IV and R is an organic radical having from 1-10 carbon atoms

Process according to claim 8,12 with the above described catalyst

3. Claims: 1 (part 3), 2-16 (part 3)

Ziegler catalyst comprising: a magnesium alkoxide (component a), a transition metal compound (component b), an organometallic compound (component c), a compound of the chemical formula  $M-R(x)$ , where M is an element of the main group IV and R is oxyalkyl.

Process according to claim 8,12 with the above described catalyst

4. Claims: 1 (part 4), 2-16 (part 4)

Ziegler catalyst comprising: a magnesium alkoxide (component a), a transition metal compound (component b), an organometallic compound (component c), a compound of the chemical formula  $M-R(x)$ , where M is an element of the main group IV and R is oxyalkyl.

R is cycloalkyl having from 4-8 carbon atoms in the ring  
Process according to claim 8,12 with the above described catalyst

1. The present set of claims lacks unity. The single general inventive concept linking the 4 inventions is a polymerization catalyst comprising:

- (A) a magnesium alkoxide
- (B) a transition metal compound
- (C) an organometallic compound
- (D) a compound of the formula  $MR(x)$ ,  
where M is an element of main group IV

a process for preparing said Ziegler catalyst (claim 8) and its use for the polymerization of alpha-olefines. The object of the invention is to

find a catalyst system that produces significantly smaller amount of wax.

2. The prior art has been identified as: D1: EP 0522424

The prior art describes a solid catalyst component (page 3, line 8 - line 18) prepared by reacting a homogeneous solution containing

(I) at least one member selected from the group consisting of metal magnesium and a hydroxylated organic compound, and oxygen-containing organic compounds of magnesium,

(=component A of claim 1: magnesium alkoxide prepared in situ, see eg. example 1 D1 or page 3, line 40);

(II) at least one zirconium compound selected from the group consisting of oxygen-containing organic compounds and halogen-containing compounds of zirconium, (=component B of claim 1: transition metal compound)

(III) at least one silicon compound selected from the group consisting of polysiloxanes and silanes (for examples, see page 5, line 33, silicon tetrachloride (=component D of claim 1))

(IV) at least one organoaluminum halide compound to obtain a solid product, isolating the solid product, and reacting this solid product (= component C of claim 1). D1 further discloses in example 30 the preparation of a solid catalyst with the above mentioned components (A=Magnesium but oxide, B= zirconium tetrabutoxide, C= isobutyl aluminum dichloride, D= tetramethoxysilane). The problem solved by D1 is to find a catalyst system in which the molecular weight distribution of the resulting polymer can be controlled (page 2, line 10 - line 11).

3. Regarding the disclosure of prior art document D1 it is clear that the above listed features A-D are not novel and cannot form a single inventive concept linking the 4 inventions.

4. Consequently, neither the objective problem underlying the subjects of the 4 claimed inventions, nor their solutions defined by the technical features allow for a relationship to be established between the said inventions, which involves a single general inventive concept. In conclusion, therefore, the 4 groups of claims are not linked by common or corresponding special technical features and define 4 different inventions not linked by a single general inventive concept. The application, hence does not meet the requirements of Unity of Invention as defined in Rules 13.1 & 13.2 PCT.

The application relates to a plurality of inventions, or groups of inventions, in the sense of Rule 13.1 PCT. They have been divided as defined above. If the applicant pays additional fees for one (or more) not yet searched group(s) of invention(s), then the further search(es) may reveal further prior art that gives evidence of a further lack of unity 'a posteriori' within one (or more) of the not yet searched group(s). In such a case only the first invention in this (each of these) group(s) of inventions, which is considered to lack unity of invention, will be the subject of a search.

No further invitation to pay further additional fees will be issued. This is because Article 17(3)(a) PCT stipulates that the ISA shall establish the International Search Report on those parts of the international application which relate to the invention first mentioned

in the claims ('main invention') and for those parts which relate to inventions in respect of which the additional fees were paid. Neither the PCT nor the PCT guidelines provide a legal basis for further invitations to pay further additional search fees (W17/00, point 11 and W1/97, points 11-16).

1. The present communication is an Annex to the invitation to pay additional fees (Form PCT/ISA/206). It shows the results of the international search established on the parts of the international application which relate to the invention first mentioned in claims Nos.:
- see 'Invitation to pay additional fees'
2. This communication is not the international search report which will be established according to Article 18 and Rule 43.
3. If the applicant does not pay any additional search fees, the information appearing in this communication will be considered as the result of the international search and will be included as such in the international search report.
4. If the applicant pays additional fees, the international search report will contain both the information appearing in this communication and the results of the international search on other parts of the international application for which such fees will have been paid.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 522 424 A (TOSOH CORP) 13 January 1993 (1993-01-13) page 3, line 8 - line 18 page 5, line 33 page 5, line 50 - page 6, line 38 page 6, line 31 - line 33 page 15; example 30	1-16
A	WO 01 38405 A (BASELL POLYOLEFINE GMBH ;ALT FRANK (DE); BOEHM LUDWIG (DE); SCHOEN) 31 May 2001 (2001-05-31) * the whole document *	1-16
A	EP 0 607 773 A (HOECHST AG) 27 July 1994 (1994-07-27) * the whole document *	1-16

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

# Patent Family Annex

Information on patent family members

International Application No

PCT/EP 03/08472

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0522424	A	13-01-1993	JP 3086891 B2	11-09-2000
			JP 5009216 A	19-01-1993
			JP 3211268 B2	25-09-2001
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WO 0138405	A	31-05-2001	DE 10003872 A1	16-08-2001
= DE 000042			AU 2357601 A	04-06-2001
			CN 1399647 T	26-02-2003
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			EP 1237943 A1	11-09-2002
			JP 2003514964 T	22-04-2003
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			CZ 9400027 A3	13-07-1994
			DE 59409551 D1	23-11-2000
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			ES 2152265 T3	01-02-2001
			JP 6279540 A	04-10-1994
			RU 2117680 C1	20-08-1998
			US 5917100 A	29-06-1999
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